

The Lesser Yellowlegs Migration, Population Structure & Demography Project

JANUARY 2020 UPDATE



BACKGROUND

The Lesser Yellowlegs is a neotropical migrant that breeds in boreal wetlands across North America and has declined by 5.3% per year since 1966.¹ Abundance estimates on South American wintering grounds indicate up to an 80% population decline compared to historic levels.² Hunting on the fall staging and wintering grounds in Central and South America is thought

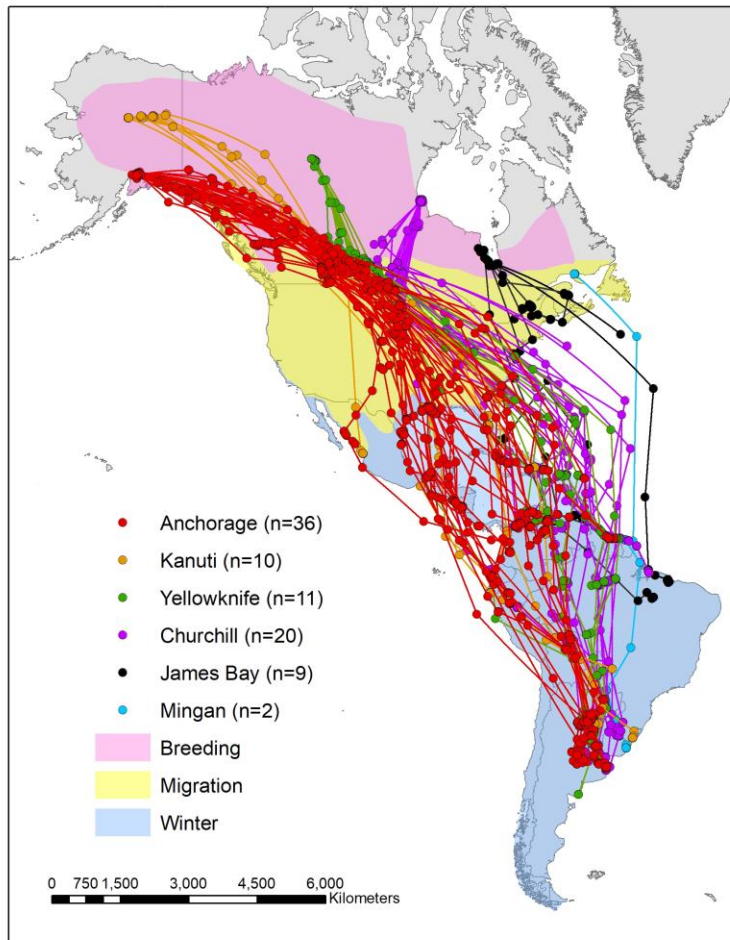
to be an important threat to the species. The Lesser Yellowlegs is likely the most widely hunted shorebird throughout the Atlantic Flyway, and current harvest levels are thought to be unsustainable³. Other threats include shoreline hardening, pesticides, habitat loss due to agriculture, and climate change. To address knowledge gaps for this species, the Alaska Department of Fish and Game, the University of Alaska Anchorage, the U.S. Department of the Air Force, and the U.S. Fish and Wildlife Service have initiated a study that seeks to understand the migration, genetics, and demography of this species. Collaborators at Environment and Climate Change Canada and Trent University helped expand the geographic scope of this project to include sites in northern Canada.

¹Sauer et al. 2013. *North American Fauna* 79: 1-32.

²Ottema and Ramcharan 2009. *Wader Study Group Bulletin* 116: 87-88.

³Watts et al. 2015. *Wader Study* 122: 37-53.

MIGRATION STUDY



During the 2018 and 2019 field seasons, 85 Pinpoint GPS-Argos satellite tags were deployed on adults from Anchorage, AK; Kanuti National Wildlife Refuge, AK; Yellowknife, NWT; Churchill, MB; James Bay, ON; and Mingan, QC. Transmitter data revealed that birds that bred west of James Bay used habitats in the prairie pothole region prior to migrating to South America. Wetlands and agricultural areas in western Argentina appear to be important wintering areas for all sub-populations. We found weak evidence for migratory connectivity, with significant overlap in locations of wintering birds from disparate breeding areas. Laura McDuffie, a graduate student at UAA, is currently quantifying the relative exposure of different breeding populations to harvest in the northern Caribbean. Next, she will analyze the migration data to identify important stopover and winter habitats.

GENETIC AND ISOTOPIC STUDIES

By the end of the 2019 field season, we had collected a total of 195 genetics samples from our six study sites across the breeding range. Our goal is to use high resolution genetic markers (single nucleotide polymorphisms) to determine the extent of population structure in the species. If significant structure exists, we hope to determine the breeding origins of birds harvested in the Caribbean region. Starting in January 2020, Sarah Sonsthagen at the USGS Alaska Science Center will start working on the genetic analysis.

We collected feather and claw samples from birds captured on their breeding range for an isotopic study. Similar to the genoscape study, the isotopic signatures of feathers (HY) and claws (AHY, HY) will hopefully allow us to accurately assign birds sampled during the non-breeding season to their natal origins. Kevin Kardynal with Environment and Climate Change Canada will be leading this effort, building on a previous study that used isotopes to determine the breeding origins of shorebirds collected in Barbados.



SURVIVAL AND REPRODUCTION

We have initiated a mark-resight study to obtain estimates of annual apparent survival of adults. In 2018 and 2019, a total of 258 Lesser Yellowlegs were banded with unique alpha-coded leg flags at field sites across Alaska and Canada. We will continue to band and resight birds on their breeding grounds over the next 2-3 years and use Cormack-Jolly-Seber models to estimate survival.

We successfully located 22 nests during incubation in 2018 and 2019 in the Anchorage area. Each nest was monitored until nest fate was determined and habitat characteristics of the surrounding area were described. Cameras were placed on nests in 2019 to determine the cause of nest failure. 45% of nests hatched at least one chick, and two black bear predation events were captured on camera. Lesser Yellowlegs nests are notoriously cryptic and difficult to find and published nest success rates are rare. Therefore, this information will help to fill key knowledge gaps on the nesting ecology of this species.

THANK YOU

This study would not be possible without the immense efforts of our many collaborators. We would like to extend our gratitude to the following people: Brad Andres, Erin Bayne, Christophe Buidin, Matthew Danihel, Danielle Eneix, Ken Foster, Christian Friis, Autumn-Lynn Harrison, Chris Harwood, Christina Howell, Kevin Kardynal, Benoit Laliberté, Peter Marra, Erica Nol, Jennie Rausch, Yann Rochepault, Marian Snively, Sarah Sonsthagen, Lee Tibbitts, Jeff Wagner, Ross Wood, Jay Wright and all field technicians who helped with this project. Kristy Rouse, Cassandra Schoofs, and Brent Koenen at Joint Base Elmendorf-Richardson's 673 CES/CEIS have supported this project from its inception and were instrumental in DoD's recognition of Lesser Yellowlegs as a Species of Special Concern. Funding comes from the Alaska Department of Fish and Game; Bird Studies Canada; Environment and Climate Change Canada, the Smithsonian Institution; the 673 CES/CEIS, U.S. Department of the Air Force (project numbers FXSB46058118 and FXSB46058119); and the U.S. Fish and Wildlife Service (WSFR – SWG Grants T-32-1, T-33-2020).

Warm regards,

The Lesser Yellowlegs organizing team (Katie Christie, Jim Johnson, Laura McDuffie, and Audrey Taylor)